

from Burns,* Stanley,† Burdach,‡ Wagner,§ Lee,|| Baer,¶ two other examples by Allen Thomson,** in one of which a *corpus luteum* and decidua membrane were present, but no ovum, though he met in the uterus a vesicle so small and delicate "that it was destroyed as soon as touched;" and more recently in 1843 a doubtful observation by Pauk,†† who, examining the uterus of a young girl at the seventh day after supposed conception, found a Graafian follicle in a turgescient state about eliminating its ovum, and a caduca in an incipient stage; but no spermatozoa were discovered in the vagina, uterus or tubes. In opening the ovarian vesicle the ovum was lost. The woman was perhaps merely at her menstrual period. Again, other and less accurate observations belonging to abnormal conditions of development are recorded by Kieser, Sæmmering, Meckel, Autenrieth, and Hunter,‡‡ but these appertain to periods further advanced.

Such are the remarks which this interesting occurrence suggests, and which it was my intention to have offered much sooner for the press, had it been convenient.

ART. III.—*Isopathia; or, the Parallelism of Diseases*. By JOHN M. B. HARDEN, M. D., of Liberty County, Georgia; Correspondent of the Academy of Natural Sciences, Philadelphia, &c.

Tuberculous or Strumous Types.—Under the head of *Inflammatory Types* we have found that the chief characteristic of the diseases there considered, consisted in the existence in the blood, and subsequent deposition into the tissues of what has been called *plastic lymph*, which resulted either in the *carnification* of an organ or the *formation of false membranes*. To this mode of action Lobstein has well applied the term *EUPLASY*, and such formations may be styled *euplastic*. The diseases which we are now to consider under our present head are all connected by a similar characteristic, with this difference, however, that the products which result from the morbid action are not capable of a perfect organization, but, according to Lobstein, are either *cacoplastic* or *aplastic*, and in this way bear a near resemblance to some of those *purulent diseases* which we have already passed over.

* Edin. Med. and Surg. Journal, vol. ii. p. 1, 1806, and Anat. of the Gravid Uterus, p. 10.

† Med. Trans. of the College of Physicians of London, vol. vi. p. 414, 1820.

‡ De factu humano adnotationes, Leipzig, 1828.

§ Loc. cit., p. 146.

|| Medico-Chirurgical Trans. of London, vol. xvii. p. 474, 1832.

¶ British and Foreign Review, No. 1, Jan., p. 238, 1836.

** Loc. cit., p. 122.

†† Archives Générales de Médecine, vol. iv. (4e Série) p. 60, 1844.

‡‡ Burdach Physiologie, vol. iii., p. 332.

Under our present head we propose to investigate three species of disease, which we regard as being perfectly distinct: these are, first Scrofula, secondly Carcinoma, and thirdly Hydatids and Entozoa generally; and it shall be our chief object to point out the *modifications* which these diseases may undergo while they remain *pathologically the same*.

The first species, then, which we shall take up, is scrofula. But what is scrofula? It must be confessed that it is a disease more easily described than defined, and when confined to the lymphatic glands upon the external surface of the body, it is readily recognized by the most careless observers. Its true nature, however, and the varied forms which it may assume in the same or different individuals, have not yet been clearly elucidated, and yet there are few diseases more common or fearful in its ravages upon the human race. It is to these points we wish now to direct attention, and although we cannot promise much to our readers from our individual labours, our highest object shall have been attained if our remarks shall bring to the consideration of the subject more competent observers.

From the investigations which we have been able to make of this disease, we think we may define it as follows: a disease connected generally with a hereditary predisposition, depending upon some fault in the functions of the organs of nutrition, and resulting in the formation and deposition of a strumous or tuberculous matter in the various organs and tissues of the body.*

Whatever may have been the views of different writers upon the pathology of scrofula, there must be very few who can deny it, at times, a constitutional origin. Broussais himself, who was probably the most hardy and strenuous advocate of the inflammatory and local origin of all diseases, has said in relation to scrofula, or more properly the tumours arising from scrofula: "Ils sont plus gros chez les sujets prédisposés aux irritations du système lymphatique:"† and he admits this *predisposition* in many places in his great work entitled "*Examen des Doctrines Médicales*." Now, although we must not confound a simple predisposition with the disease itself, yet the predisposition being constitutional, the disease developed upon that predisposition must be constitutional also. Marjolin‡ has said of it that "it is a disease *totius substantiæ* of the body; no tissue or structure is exempt from its invasion;" and so constantly has it been found connected with a certain physical conformation, that many of our ablest authors have ascribed its origin in all cases to a general constitutional diathesis which they have called scrofulous. Such appears to have been the opinion of most of the older writers, together with Dr. Parr, Joseph Frank, Bayle, Armstrong, Andral, Laennec, Louis, Clark, Crichton, Lugol, Stokes, Barlow, and many others. But although this hereditary constitutional predisposition does exist, it by no means follows that scrofulous affections must necessarily be developed in every person so constituted, or that all

* Dr. Carswell supposes that "of all organs, and of all tissues, the mucous membrane is most especially the seat of this morbid production. Thus it is found in the mucous system of the respiratory, digestive, biliary, urinary and generative organs. It is also observed on the secreting surface of serous membranes, particularly the pleura and peritoneum, and in the cells of the cellular tissue: it often forms considerable accumulations in the lacteals and lymphatics, both before and after they unite to form their respective glands. It is also seen in the substance of the brain and cerebellum in accidental cellular tissue, and in the blood."—*Med. Chir. Rev.*, vol. xxii. p. 367.

† Propositions de Médecine, 169.

‡ *Med. Chir. Rev.*, vol. xxxv. p. 213.

persons not so constituted are necessarily *exempt*. This would, indeed, be running into the fatalism so much dreaded by Broussais.

Of the above characteristics of the disease, then, the most *important* certainly is the *formation and deposition of strumous or tuberculous matter*. Let us, therefore, consider its nature and its origin.

Dr. Rush* was of opinion that tubercles were nothing more than the natural mucus of the lungs which had become inspissated; but more modern observations have shown them to consist for the most part of a modified or vitiated form of albumen. "Ordinary tubercles," says Marshall Hall,† "contain about 98 parts of animal matter and 2 parts of saline matter; viz: the muriate of soda and the phosphate and carbonate of lime. In some cases they undergo a calculous transformation, and they then consist of 3 parts of animal matter and 97 parts of saline matters. This calculous transformation‡ is observed in the lungs, in the mesenteric glands, &c. It is opposed to softening."

Dr. Prout regarded scrofulous matter as "albumen imperfectly developed; Gendrin as a mass of albumen with excess of salts; Bredon considers it to be an albuminate of potash or soda. Boiling water and acids coagulate it when it has become somewhat softened."§ Boudet found, upon analysis, the following ingredients in tubercle: 1st, albumen; 2d, caseine; 3d, a substance presenting the characters of fibrine; 4th, a substance soluble in boiling alcohol (cerebric acid); 5th, oleic and margaric acids; 6th, saponified fat; 7th, lactic acid; 8th, lactate of soda; 9th, cholesteroline. The ashes yielded chloride of sodium and sulphate of soda, together with phosphate and carbonate of lime and some silex and oxide of iron.¶ The following¶ is the mean of two analyses by Dr. Wright:—

1st, Fatty matter with oil globules	-	-	-	-	11.69
2d, Gelatin,	-	-	-	-	9.1
3d, { Phosphates } { Sulphates } { Muriates }	Lime } Soda }	-	-	-	6.85
4th, Carbonate of lime	-	-	-	-	a trace
5th, Oxide of iron	-	-	-	-	a trace
6th, Albuminous matter with fibrine	-	-	-	-	70.6

M. Thenard found, upon analysis, the following:—

1st, Animal matter (albuminous chiefly)	-	-	-	-	98.15
2d, { Muriate of soda } { Phosphate of lime } { Carbonate of lime }	-	-	-	-	1.85
3d, Iron	-	-	-	-	a trace

* Med. Observations, vol. ii. p. 74.

† Hall's Practice, p. 157.

‡ This calculous transformation of tubercles is a very interesting subject, and is, no doubt, similar to *mineral petrifications* where the organic are replaced by inorganic substances, and shows how completely a disease may change its character in the course of years. When this transformation or *petrification* takes place, we have a *calculus* in the place of a *tuberculous disease*, which we will notice under the head of *podagric or gouty types*; and we should by no means adopt the conclusions of Dr. Prout, that "the strumous, lithic acid and gouty diseases are all the results of mal-assimilation of the albuminous principle, and often gradually run into one another. The gouty chalk stones of old age may be considered as little more than modifications of the scrofulous tubercle of youth."—*Vide Am. Journ. Med. Sci.*, No. 12, N. S., p. 383.

§ Med. Chir. Rev., vol. i., p. 131.

¶ Am. Journ. Med. Sci., N. S., No. 17, p. 187.

¶ Ibid., N. S., No. 22, p. 454.

The chief organic constituents of tubercle, according to the analyses of M. Hasse* are—1st, fibrine; 2d, caseine; 3d, fat; with 4th, a small proportion of albumen. The inorganic compounds are—chloride of sodium, phosphate of soda, phosphate and carbonate of lime, oxide of iron, &c.

In relation to the chemical composition of tubercle Dr. Bennett† gives us the following summary and observations:—"In reviewing," says he, "the different analyses of tubercle which have now been given, we find—

"1. That tubercle consists of an animal matter mixed with certain earthy salts.

"2. That the relative proportion of these varies in different specimens of tubercle. That animal matter is most abundant in recent and earthy salts in chronic tubercle.

"3. That the animal matter certainly contains a large amount of albumen. Some chemists have also detected caseine, the existence of which is probable, others gelatin, the presence of which is more doubtful. The statement of Gueterboeck that it contains a peculiar animal matter (phymatine) has not been confirmed by other analysts. Fibrine and fat exist in small but variable proportion as a constituent of tubercle.

"4. The earthy salts are principally composed of the insoluble phosphate and carbonate of lime, with a small proportion of the soluble salts of soda. The statement of Boudet that cutaneous concretions are principally formed of the latter is directly opposed by other chemists, and is quite incompatible with their long persistence in the body.

"5. That very little difference in ultimate composition has yet been detected between recent tubercles and other so-called compounds of protine."

Dr. Carswell‡ believes the chemical composition of tubercle to "vary at different periods in different animals and probably in different organs. In man it is chiefly composed of albumen with various proportions of gelatin and fibrin."

Broussais,§ in summing up the conclusions of pathological anatomists upon the nature of tubercle, says—"Les tubercules sont une matière opaque, d'un jaune pâle, qui, en l'état de crudité, a une consistance analogue à celle de l'*albumen* concrète, mais plus forte. Dans l'état de ramollissement, elle devient d'abord molle, friable, et acquiert par degrés une consistance et un aspect analogue à ceux du pus. On a désigné cette matière morbifique sous le nom de *matière scrofuleuse*, mais les tumeurs scrofuleuses, quoique de même nature, ont quelques caractères particuliers,|| qui en font une véritable variété des tubercules."

Recently considerable attention has been paid to the microscopic characters of tubercle. Breschet, who adopts the opinion of M. Kuhn in relation to the parasitical origin of tubercles, gave us several years ago the following microscopical appearances. "When you extract,"¶ says he, "with precaution, one of those small granulations of a gray colour which abound in the

* Am. Journ. Med. Sci., N. S., No. 24, p. 469.

† Ibid., p. 485, 486.

‡ Med. Chir. Rev. xxii., 369.

§ Examen des Doctrines, vol. iv., 118.

|| We are not aware in what this difference consists. According to the analyses of scrofulous matter by Prout, Gendrin and Bredon, as given us by Mr. Phillips in his late work on scrofula, and as quoted above, it is made up for the most part of albumen, like tubercle.

¶ Am. Journ. Med. Sci., No. 23, p. 487.

lungs of certain individuals, and are the origin of tubercles, and place it under the focus of the microscope, having lacerated it, you see that it is composed of other granulations still smaller; and the lacerated substance seems to be composed of an innumerable number of small albuminous globules, connected to one another by hyaline filaments, and the whole enveloped by a layer of mucus. Granulations, therefore, appear to be constituted by a filamentous apparatus, surrounded by globules in great number. The analogy is clear and striking between this structure and that of the mould which forms on paste, bread," &c.

The following* are some of the most important conclusions of an elaborate Memoir communicated to the Academy of Sciences on the microscopic anatomy of tubercles, by Dr. Lebert.

1. "The constant microscopic elements of tubercles are these:—a. Molecular granules. b. A hyaline interglobular substance. c. The proper corpuscles or globules of tuberculous matter. These globules contain a number of molecular granules, but no distinct nuclei. They are not affected by water, ether and the feeble acids; but they are dissolved by the strong acids as well as by ammonia and caustic potash.

2. "The opinion of certain pathologists that tuberculous deposit and its globules are only modifications of purulent matter, is contradicted by the result of microscopic inspection; the differences between them are strong and decided. The corpuscles of the latter are considerably larger, of a regular spherical shape, and contain from one to three nuclei; they are, moreover, usually free and isolated; whereas those of tuberculous matter are, especially in the crude state of tubercles, closely joined together. The globules of cancerous matter are twice or even four times as large, and they contain a nucleus in which again from one to three nucleoli are often observable.

3. "In sarcocele and also in scirrhus and encephaloid tumour of the mamma we not unfrequently find a yellowish cheesy-looking substance which much resembles genuine tuberculous matter: but a careful examination with the microscope clearly shows that it consists entirely of globules of cancer infiltrated with fat.

4. "When tubercles soften, their interglobular substance liquefies, the globules separate from each other, and may then, by absorbing a certain portion of the fluid, become larger; this change does not constitute an increased growth, but, on the contrary, the commencement of the process of decomposition.

5. "The pus, which is found blended with the softened tubercles, is supplied by the surrounding tissues, and is by no means the result of any transformation of the matter itself; but the pus, it must be confessed, quickly alters it and renders its elements much less easily recognizable.

6. "The globules of softened tubercles become ultimately dissolved in a granular fluid, and thus the ramollissement of their substance passes fairly to the state of diffuence.

7. "The cretaceous condition of tuberculous matter presents under the microscope the appearance of amorphous mineral granules, blended often with crystals of cholesterine and colouring matter. A part of the tuberculous globules is then removed by absorption, while the other portion remains for a long time in an unchanged condition.

8. "Occasionally we find in tuberculous deposit corpuscles of fat, melanosis, greenish-coloured globules and crystals which have the form of those

* Am. Journ. Med. Sci., Oct. 1844, p. 461.

of the ammoniaco-magnesian phosphate. Besides these admixtures we may find blended along with them the elements of inflammatory and suppurative action and various sorts of epithelial exudations; all of which tend to modify the essential microscopic features of the tubercles."

In a more recent work, (*Physiologie Pathologique*), M. Lebert gives the following as the constant elements of tubercle:—

1. "A great quantity of molecular granules perfectly round, having diameter varying from $\frac{1}{1000}$ to $\frac{1}{500}$ of a line; 2, a hyaline substance rather consistent, and uniting together the preceding; 3, globules proper to tubercle. The latter constitute the peculiar characteristic of this morbid product and are thus described: their form is rarely altogether round, although it is probable that, on their first deposition, they approach the spherical figure and that they assume a less regular and often angular contour, as we see in so many other analogous instances, from their close juxtaposition; they are of a clear yellow colour and contain granules, but no distinct nucleus. These tuberculous globules vary considerably in their size, but without any definite relation to the age of the subject or to the organs in which they exist. After contrasting the globules in question with those of pus, cancer, and encephaloid, M. Lebert thus expresses himself: 'Tubercle, then contains in its crude state an element which is peculiar to it, and which distinguishes it from all other morbid productions.'"

In regard to the origin or mode of production of tubercle three opinions at least, have been entertained; the partisans of which have, in some instances, but too clearly shown the force of those prejudices which have been happily termed, by the author of the *Inductive System*, the "*Idola Tribus*." By some they have been supposed to have a parasitical origin, and to be nothing more nor less than true hydatids or acephalocysts, and tuberculization the result of the death or destruction of these animals. By others they are said to be the product of a kind of irritation or subacute inflammation of the tissues in which they are found. While, by a third party, they are believed to be formed in the blood by an error in the nutritive functions, and to be afterwards secreted into the different tissues and organs of the body. Let us examine these separate opinions.

M. Kuhn,† we believe, was the first to advocate the doctrine of their parasitical origin, in a paper read before the French Academy, in the year 1833. In this paper, he advances the opinion, that "they are to be considered as truly of an animal nature." The hydatids, by their irritation, cause cysts to be formed around them; these cysts become stronger, fibrous, or even cartilaginous; meanwhile the acephalocysts enlarge by serous imbibition, and multiply by buds from their inner surface; these again, in course of time, give rise to others, the whole nest being contained in one bag. From the inside of this bag is secreted a yellowish viscid matter which becomes thicker and thicker; M. Kuhn regards it as the primitive tuberculous deposit; it gradually solidifies, and with a simultaneous shrinking of the cyst, tends to squeeze and kill the enclosed animals, thus giving rise to a nucleus of tubercles."

In 1834, M. Breschet‡ read a paper before the Academy of Medicine, on "A New Theory of the Formation of Tubercles," in which he also advo-

* Med. Chir. Rev., Jan. 1846, p. 243.

† Med. Chir. Rev., July, 1833, p. 201. It is true that the term tubercle had been before applied to hydatidic tumours, but all tuberculous tumours were not considered hydatidic.

‡ Am. Journ. Med. Sci., Aug. 1834, p. 478.

cated their parasitical origin in accordance with the views of M. Kuhn. In the year 1836, Mr. Carmichael* read an "Essay on the Origin and Nature of Tuberculous and Cancerous Diseases," before the Medical Section of the British Association, in which he adopts the same view, and asserts that "tubercles are beings possessing a vitality independent of the animal in which they are lodged, except so far as that animal affords them; 1st, the organic particles of which they are formed; and 2d, the nutriment which they imbibe by their own innate powers, and thus they form the last link in the chain of the last class of animals, the *Entozoa*."

That hydatids are formed at times in the lungs, and other organs of the body, is a fact that cannot be denied, and it is highly probable, and indeed no less true, that they are formed under a similar predisposition, and identical exciting causes; but that they are the sole origin of tubercles, or that they are identical with tuberculous matter, we must either deny altogether, or dispute the statements of those whom we feel bound to consider as good observers. M. Louis† has detected hydatids in the brain of phthisical patients, and he has also met with one case of the kind in which they were found in the spinal marrow, and another in which they were found in the lungs; but although he regarded them as being intimately connected with tubercles, they could not be confounded with them. Andral has also met with hydatids in the human body, but not more than four or five times in 6000 cases.

The next opinion in relation to the origin of tubercle, is that which refers it to the action of inflammation or irritation, which, according to the physiological doctrine, is the first degree or stage of inflammation. Broussais, it is well known, has contended most strenuously for this doctrine. The fourth volume of his "*Examen des Doctrines Médicales*," is almost entirely devoted to this subject, and affords us a fine specimen of his great ability as a writer. His argument seems to be principally founded on the two following facts: viz., first, that he had never seen, out of a great many subjects, in the French army, any one with tubercles in the lungs, who did not trace the disease to an "*impression of cold producing catarrhs, pneumonia or pleurisy, or some other cause which had irritated the lungs, as concussion from falls, moral affections, the use of alcoholic drinks, and other excitants of the gastric passages, forced marches or other excesses which had accumulated the blood in the tissue of the lungs;*" and secondly, that he had found that although "spare and feeble persons with long necks, contracted narrow chests, small limbs, fine and transparent skin, light hair, &c., become much more readily tuberculous and phthisical than men of dark skin, expansive chests, and well developed muscles, yet all men may become victims of tubercular phthisis," if exposed to the proper exciting causes.

This opinion of course has had a great many advocates, and has recently been adopted by Bennett, Evans, and Sibson, and is the only one which can satisfy the minds of the solidists or vitalists in medicine, but it appears to me that it can be successfully opposed not only by *à priori* considera-

* Am. Journ. Med. Sci., Feb. 1837, p. 532. The same doctrine is also adopted by Dr. Baron, in his work on "*Tuberculous Affections*," and by Dupuy in his "*Traité de l'Affectiion Tuberculeuse*." Vide Louis on Phthisis, Boston, 1836, p. 144.

† (Louis on Phthisis, p. 143.) We have never seen a case of hydatids in man. In hogs, however, they are very common, and are known as *measles*. They are not properly acephalocysts as the hydatids in man are said to be, for they possess a head as well as a body, and are called by Cuvier "*Cysticercus Cellulosus*." It is observed, that hogs that are allowed to go at large never have them.

tions, but by facts which cannot bear such a mode of interpretation. Although we are not entirely satisfied with the entire train of reasoning in the following extract, we beg leave to give it as containing a pretty complete refutation of the inflammatory origin of tubercle. "The doctrine of the inflammatory origin of tubercle has always appeared to us untenable; for setting aside the objections arising out of the relative topographical statistics of this product, and those of inflammation as established by Louis, there are others to be adduced which it is equally difficult to reconcile with the doctrine. Tubercle undoubtedly exists as such in the blood; it must, therefore, either co-exist with the fibrine or be supplementary of it. The latter supposition is entirely negated by the researches of Andral and Gavarret, which demonstrate that the blood of phthisical patients contains more than that in any other disease, the pure phlegmasia excepted. We must, therefore, admit their co-existence in the blood. This being granted, the question of the origin of tubercle, so far as inflammation is concerned, is reduced within very narrow limits. Either the same vital action, that is, inflammation existing in capillary vessels which are separated from each other by inappreciable distances, is capable of giving rise at the same time to two totally different products, namely, tubercle and fibrine, or we must conclude that these products originate in a different vascular action. In other words, we must believe, if we hold the inflammatory theory, that the tubercular deposition, and the chronic induration in its immediate vicinity, the latter a pure fibrinous exudation, are the result of the same action in contiguous capillary branches. Now although we do not maintain that it is impossible, we must yet hold that it is improbable that where the blood, holding both the fibrine and tubercular matter in solution, arrives at the side of two given capillaries—one supplying one cell—the other the next—these vessels should be capable of exercising a kind of elective affinity; and one under inflammation allow the exudation of tubercle—the other of the true blood plasma. The difficulty is only to be avoided upon the supposition, that, of these two processes, namely, tuberculization and pneumonic exudation, going on as they assuredly do at the same time, the latter alone is inflammatory, the other is the product of some other kind of vascular action, most probably that which in healthy subjects is subservient to normal nutrition."*

But facts are also at variance with this opinion. "Microscopic examination most decidedly exposes the fallacy of the opinion that the gray granulation is the product or effect of inflammatory action." M. Rainey† has observed that the "comparatively healthy appearance of the capillaries surrounding a mass of tubercle, in reference to the tortuous and unequally dilated state of vessels going to parts in which fibrine is deposited as the result of inflammation, is subversive of the doctrine which attributes the deposit of tubercle to that process." But again, I myself have opened and examined the body of an infant a few weeks old, whose mother had just died from pulmonary consumption, in whom I found the lungs and spleen studded with granulations which seemed to have been inherited from its parent without previous disease—and Dr. Armstrong‡ says, "on examining the bodies of young children, I have sometimes found tubercles or the germs of tubercles in the lungs, where no sign of pectoral disease had previously existed; and I have met with them likewise in adult lungs where there had been no sufficient grounds for suspecting them during life.

* Ranking's Abstract, vol. i. p. 210.

† Am. Journ. Med. Sci., Oct. 1846, p. 469.

‡ Medical Works, p. 439.

Such occurrences have led me to suppose, that tubercles may sometimes be congenital, and that at other times they are the slow and unsuspected products of later periods."

Facts like these have necessarily led to the adoption of the opinion that tubercles are formed in the blood by a defective action of the organs of nutrition, or mal-assimilation, and that they are secreted into the tissues in which they may be found without previous inflammation. This seems to be the view taken of the matter by Bayle,* Laennec,† Louis,‡ Morton,§ Lebert,|| and Nicolucci, and many others, and has been confirmed by the anatomical researches of Dr. Carswell. "While the miliary tubercles are considered by M. Andral as the pulmonary vesicles rendered hard by chronic inflammation, others following Dr. Carswell continue to attribute them to a secretion from the blood,¶ not of tubercular matter alone, but also of a portion of its albuminous fluid forming a transparent matrix or cyst for the more solid deposit. Dr. Watts seems to hold the modified view of tubercles being of an intermediate nature between pus and coagulable lymph, first solidifying, then softening. That tubercles are the pure result of inflammation is now rarely entertained; but the more modern phraseology is, that they are a perversion of the ordinary process of nutrition, and that the existence of the *scrofulous diathesis*, occasions that to be deposited as inorganizable albumen, which, in the sound state, would have taken on the form of organized fibrine."**

Dr. Wright†† thus expresses himself in relation to the formation of tubercle. "Tubercular matter," says he, "may be found either in the blood-vessels, or externally to them. But, wherever tubercle is produced, the blood itself is essentially the source of it. In those cases, numerous enough, in which tubercle is discharged abundantly, and in a state of complete maturation from the mucous membrane of trachea or bronchi or bowels, without any lesion of these parts, such matter must have been formed, and matured in the circulating system, whence it was eliminated as a foreign body by the most eligible outlet."

The following remarks of Dr. Carpenter‡‡ upon this subject, are so just that, although the extract is long, I beg leave to give them *entire*, as embodying our own views:—"In persons of that peculiar constitution which is termed *scrofulous* or *strumous*, we find an imperfectly organizable or *cacoplastic* deposit, or even an altogether *aplastic* product, known by the designation of *tubercular matter*, frequently taking the place of the normal elements of tissue, both in the ordinary process of nutrition, and still more when inflammation is set up. From an examination of the blood of *tuberculous* subjects, it appears that the *fibrinous* element is not deficient in amount, but that it is not duly elaborated; so that the *coagulum* is loose and the *red corpuscles* are found to bear an abnormally low proportion to it. We can understand, therefore, that such a constant deficiency in the plasticity, must affect the ordinary nutritive process; and, there will be a liability to the deposit of *cacoplastic* products without inflammation, instead

* Examen des Doct. Med., tome quatrième, pp. 152, 212.

† Treatise on Diseases of the Chest.

‡ Researches on Phthisis.

§ Illustrations of Pulmonary Consumption.

|| Ranking's Abstract.

¶ Magendie once detected tuberculous matter between the columnæ carnearæ of the right ventricle of the heart of an individual, who had died of consumption.—Légoas sur le Sang, pp. 11, 12.

** Am. Journ. Med. Sci., April, 1844, p. 447.

†† Ibid., 1846, p. 451.

‡‡ Principles of Human Physiology, pp. 462, 463.

of the normal elements of tissue. Such appears to be the history of the formation of tubercles in the lungs, and other organs when it occurs as a kind of metamorphosis of the ordinary nutritive process; and in this manner it may proceed insidiously for a long period, so that a large part of the tissue of the lungs shall be replaced by an amorphous deposit, without any other ostensible sign than an increasing difficulty in respiration. It is in the different forms of tubercular deposit, that we see the gradation most strikingly displayed between the plastic and aplastic formations. In the semi-transparent, miliary, gray and tough yellow forms of tubercle, we find traces of organization in the form of cells and fibres more or less obvious; these being sometimes almost as perfectly formed as those of plastic lymph, at least on the superficial part of the deposit, which is in immediate relation with the living structures around, and sometimes so degenerated as scarcely to be distinguishable. In no instances do such deposits ever undergo further organization, and, therefore, they must be regarded as cacoplastic. But in the opaque, crude, and yellow tubercle, we do not find even these traces of definite structure; for the matter of which it consists, is altogether granular, more resembling that which we find in an albuminous coagulum. The larger the proportion of this kind of matter in a tuberculous deposit, the more is it prone to soften whilst the semi-organized tubercle has more tendency to contraction. This is entirely aplastic. Now, although tubercular matter may be slowly and insidiously deposited by a kind of degradation of the ordinary nutritive process, yet it cannot be doubted that inflammation has a great tendency to favour it; so that a larger quantity may be produced in the lungs after a pneumonia has existed for a day or two, than it would have required years to generate in the previous mode. But the character of the deposit still remains the same; and its relations to the plastic elements of the blood, are shown by the interesting fact, of no unfrequent occurrence, that in a pneumonia affecting a tuberculous subject, plastic lymph is thrown out in one part whilst tuberculous matter is deposited in another. Now inflammation, producing a rapid deposition of tubercular matter, is peculiarly liable to arise in organs which have been previously affected with chronic tubercular deposits by an impairment of the process of textural nutrition; for these deposits acting like foreign bodies, may of themselves become sources of irritation; and the perversion of the structure and functions of the part renders it peculiarly susceptible of the influence of external morbid causes. These views, at which several recent physiologists and pathologists have arrived on independent grounds, seem to reconcile or supercede all the discordant opinions which have been upheld at different times regarding the nature of tubercle; and lead to the soundest views with respect to the treatment of the diathesis."

Having now explained as far as we have been able, the nature and origin of tubercle or strumous matter, which we believe identical, we lay down the following proposition: that, namely, in whatever part of the system this matter may be found deposited, however variant may be the symptoms produced from the functions disturbed, the diseases by which this deposit was effected, are invariably the same, or, in other words, are isopathic in their nature. This proposition is fully established if the law, which we have already laid down, be admitted to be true, namely, that "diseases which result in products, or deposits which are both isomorphic and isomeric, must be considered as isopathic, no matter how they may differ in their seats and symptoms." The same law has been expressed

in different language by M. Lebert.* "In the molecular composition of morbid products," says he, "everything which is really and materially different in pathology, shows this difference in the ultimate elements appreciable by sight, that is, in the microscopic structure." Now, if the chemical and microscopic elements of tubercle are found to be the same in whatsoever part of the body it may be deposited, why should the diseases which produced it be considered different? But we are very glad to have the following high authorities in favour of our proposition. Dr. Gerhard† has declared that "all the forms of disease characterized under the term tuberculous, resemble each other in their anatomical lesions, which consist in a deposit of tuberculous matter. The variety in the symptoms of tuberculous diseases arises partly from the difference in the *structure of the organs* affected, and partly from the degree of inflammation which may accompany their formation. The functions of an organ are usually disordered where it becomes the seat of tubercle; and hence every local disease which is accompanied by a secretion of this substance, offers the compound symptoms of the general tuberculous disorder, and of the local lesion. Where the local symptoms predominate, the general character of the tuberculous disease is lost sight of, and the affection is regarded as an ordinary inflammation. Thus most cases of tuberculous peritonitis and meningitis are even now considered as simple inflammatory affections. In the lungs, the local signs are much less intense, so that time is allowed for the development of the symptoms of the general disease, and pulmonary phthisis is looked upon in the light of a mere chronic phlegmasia. It is this moderate development of the local signs, which has caused the true nature of pulmonary consumption to be much better understood than that of many analogous diseases." "We must, therefore, remember that as phthisis constitutes only *one* of the numerous forms of tuberculous diseases, we should be careful to avoid isolating it from the *numerous kindred affections* occurring in the lymphatic glands, the serous or mucous membranes." And even still more in point are the following remarks of Rilliet and Barthez,‡ in their work on the Diseases of Children. "Tuberculization," say they, "is the deposition in organs of an accidental production, without analogy in the economy, to which the name of tubercle has been given. It is common to meet with this foreign body simultaneously in several organs, and whichever be that in which it is deposited, its nature, its evolution, and the greatest part of the phenomena it gives rise to, *are the same*. The different species of tuberculization, then, should, just as dropsies or phlegmasiæ, be considered as *identical affections*, whose differences principally result from the seat and functions of the organs they have invaded. Tubercle exerts on every tissue the same local action; thus, very frequently, occasioning the development of a secondary inflammation of which the frequency and characters vary according to the nature of the organ affected. The tubercular phlegmasiæ form a group just as well marked as do the simple phlegmasiæ. The general pathological effects which tubercle causes, being only influenced in an indirect manner by the organs affected, present an *almost perfect identity* in all the species (varieties) of tuberculization. The most common of these effects is a general wasting, a consumption, to which the name of phthisis has been given."

* Med. Chir. Rev., Jan. 1846, p. 242.

† Am. Journ. Med. Sci., Feb. 1838, pp. 368, 369.

‡ Vide Review of the Work, in Med. Chir. Rev., Oct. 1845, p. 406, *et seq.*

We now proceed to take up in order, those diseases belonging to this type or species which are isopathic the one with the other. The prototype of these diseases must, of course, be the struma vulgaris or common scrofula, of which we have already given a definition. It is a disease, which was well known to the ancients, being denominated *χαρσα*, by the Greeks, and struma by the Latin authors; and the faithfulness of the following description by Celsus,* will be recognized by all:—"Struma quoque est tumor in quo subter concreta quædam, ex pure et sanguine glandulæ oriuntur; quæ vel præcipue fatigare medicos solent; quoniam et febres movent nec unquam facile maturescunt; et sive ferro sive medicamentis curantur plerumque iterum juxta cicatrices ipsas resurgunt; multo post medicamenta sæpius; quibus id quoque accedit quod longo spatio detinent. Nascuntur maxime in cervice; sed etiam in alis et inquinibus, et in lateribus—in mammis quoque. feminarum se reperisse, Mege auctor est." We need give no further description of it—and the first disease which we shall mention as isopathic with it, is hydrocephalus, or probably more correctly "tubercular meningitis."

This disease, like many others, had long been ascribed to the vague and uncertain pathogeny of inflammation of the brain or its meninges, either acute or chronic.

In the February and May numbers of the *American Journal of Medical Sciences*, for the year 1834, and the November number for 1835, Dr. Gerhard has detailed a number of cases of cerebral diseases, and his analysis has led him to "suspect a fact which will be presently," says he, "more fully developed, that is, the close connection, if not identity of one form of cerebral disease with the tuberculous affections;" and again, he says, "the most important fact to which this series of observations has led, is the proof of the connection of the cases included in the first class with the tuberculous affections. It was long since remarked that many children who had died of a cerebral disease, were of a scrofulous temperament, but it was impossible either to confirm this remark, or to point out the cases to which it should be limited, without the aid of pathological anatomy." Subsequent reflection seems to have changed the suspicion into a certainty in his mind, for in the February number of the same Journal, for the year 1838, he holds this strong and decided language:† "If there be any disease which, from its frequent occurrence and fatal termination, causes the despair both of physician and patient, that disease is the tuberculous affection. Whether we designate it as pulmonary phthisis, meningitis of children, chronic peritonitis or scrofula, the radical disorder is the same, and presents similar anatomical characters."

Dr. Hennis Green,‡ who was among the first writers to call the attention of medical men to the frequency of coincidence of the disease with the deposition of tubercular matter upon the meninges of the brain, in a paper on this subject, published in the *Medico-Chirurgical Transactions* (1842); has given a table containing the name, age, sex, symptoms and lesions, of 30 children, who died from or with tubercles of the brain. Nine of the children died with symptoms closely resembling those of acute hydrocephalus; a few with symptoms of softening of the brain, the rest of consumption, small-pox, &c. In enumerating the symptoms attendant on

* Medicina, p. 262.

† Am. Journ. Med. Sci., Feb. 1838, p. 368.

‡ Med. Chir. Transactions, vol. xxv., and Amer. Journ. Med. Sci., April, 1843, pp. 461-4.

the deposition of tubercle in the brain, he observes, "In most cases it (that is, the acute stage) consists in a succession of symptoms of an irregular character, and more or less allied to those of acute hydrocephalus, or softening of the brain. Thus the acute stage of cerebral tubercle may commence as the third stage of acute hydrocephalus, or the symptoms of the different periods of this latter disease may run rapidly into, and be mixed up with each other;" and again, "the irregularity of the symptoms which occur in the acute stage of cerebral tubercle, is, I conceive, a very important point in the history of cerebral disease among children. Authors frequently mention the occurrence of anomalous cases of hydrocephalus, of cases in which the first stage of the disease was wanting. Is it not probable, from what has been said, that many of these hitherto unexplained anomalies depend on the complication of acute hydrocephalus with cerebral tubercle, or, to speak more correctly, on the fact that the acute stage of cerebral tubercle generally consists in irregular hydrocephalic symptoms?"

Dr. Green observed, in the Children's Hospital at Paris, 60 cases of hydrocephalus, in 56 of which tuberculous matter was deposited in the inflamed pia mater. MM. Rilliet and Barthez found the same in 29 out of 33 cases, and M. Bouchut in 6 out of 9 cases. "The intimate connection of the disease," says the *Med. Chir. Rev.*, "with the strumous diathesis has been long observed. The observations of English, German, and French writers, but especially the latter, all tend to show the rarity of the occurrence of hydrocephalus, without tuberculization of some one or more organs of the economy. In the vast majority of cases, it is the strumous, and far less manageable form of inflammatory action which prevails."

Dr. Good* has said of the disease that "it is often connected with a scrofulous habit, and has sometimes formed a fatal metastasis to consumption." Dr. Green† says, "in children the tubercular matter is widely diffused, and has implicated many important viscera; in the brain it may excite hydrocephalus or meningitis; under the serous membrane of the chest, pleurisy; in the abdomen, peritonitis; in the intestines, tubercular ulceration. These complications rapidly undermine the resisting power of the little patient; diarrhoea sets in and death ensues long before the period at which a fatal termination takes place in the adult." Dr. Evans‡ says: "The study of this species of meningitis is the more worthy of engaging the attention of the pathologist, from the fact that this affection, like chronic peritonitis, often attacks subjects in whom the tubercular affection of the lungs has not yet made great advance—in other words, subjects who may have survived a long time had not the meningitis become implicated in the disease." Dr. Hamernik, in a late paper on Tubercular Meningitis, of which an abstract is given in the January number of the *Am. Journ. Med. Sci.*, makes the following remarks touching the connection of scrofula and this form of meningitis:—"When a child," says he, "which has for some time appeared to lose flesh, and especially if he have previously had *scrofulous enlargement of the glands*, becomes the subject of pains in the head, we must be on our guard; but other symptoms portend the appearance of tubercular meningitis; in the case of robust children headache is not of so serious import, as it may arise in them from many other causes. Convulsions, tossing of the hand about the head, and screaming are not specially connected with the tubercular affection, as any kind of exudation at the base of the brain may give rise to the same symp-

* Study of Medicine, vol. ii. p. 402.

† Med. Chir. Trans., vol. xxvii. p. 353.

‡ Med. Chir. Rev., April, 1845, p. 404.

toms; but it is to be remembered that in nineteen out of twenty cases *deposition in this spot is of a tuberculous nature.*" Dr. Bennett,* in his work on Acute Hydrocephalus, has especially directed attention to *scrofula* as a predisposing cause of the disease, and among the morbid appearances presented after death, he mentions a "yellowish gelatinous substance frequently containing caseous deposit, and intermediate in texture between fibrine and tuberculous matter." "In other cases *decided tuberculous matter is deposited in layers or patches varying in size and consistence; or, again, as solid masses imbedded in the substance of the brain. Again, granules or miliary tubercles may be observed singly or in groups, situated on the pia mater.*" We need pursue this topic no further, as we feel convinced that it is now very generally admitted that there is a form of hydrocephalus isopathic with scrofula.

We pass on to the consideration of another and probably the most frequent modification of scrofula. We allude to that form of pulmonary consumption now very commonly known as tubercular phthisis. Bayle, it is well known, divided phthisis into six different species, *a tuberculous, a granulated, a cancerous, a melanotic, a calculous, and an ulcerous*, while, on the other hand, Laennec and Louis have admitted but one species, the *tuberculous*. Now it is true that the application of terms is in a good degree arbitrary, and their use, either in a contracted or expanded sense, cannot be productive of confusion so long as the writers make themselves clearly understood; yet we think there has been fault on both sides in the above use of the word phthisis. Bayle has made too many, and Laennec too few, species of the disease. Bayle was evidently deceived in considering granulations as different from tubercles, and hence his first two species become merged into one; so also, melanosis being in the view of Laennec a soft cancer, his *cancerous, melanotic and ulcerous* would become *one and the same*, and he would then have but three species. He has, however, omitted a most important species of phthisis to which we alluded under our head of purulent types, namely, the *apostematous*. Neither Bayle nor Laennec makes any mention of this last, and yet it seems to us to be as clearly marked a species of disease as was ever presented to the consideration of the mind. Laennec and Louis are also wrong in confining the appellation to the *tuberculous* alone, inasmuch as the same general symptoms may arise from a disease affecting the same organs, yet having very different anatomical characters.

As already stated in our last paper, we think the term has been applied to at least three distinct species of disease—these are, the *apostematous*, the *tubercular*, and the *cancerous* or *carcinomatous*, and we will add a fourth,†

* Med. Chir. Rev., April, 1843, p. 332.

† This disease may exist, to all intents and purposes, *without the effusion of water*; the patient dying before that event takes place. The effusion of water, constituting the various forms of dropsy, is a secondary and not a primary element of the disease, or, as Heberden has expressed it, "*Hydrops non tam ipse morbus est quam alicujus morbi signum*," and seems to depend upon three different proximate causes, viz.: 1st, mechanical obstruction by pressure upon the vessels. 2d. That peculiar state of the blood known as *anasarca*, where the watery parts are positively increased, forming idiopathic dropsy, belonging to our head of hydropic types, and 3d, the passage out of the blood of an undue portion of its *albumen*. There may be a chronic form of this disease arising entirely from *hydatids*.

* I am under the impression that there is another form of consumption or phthisis which is specifically distinct from either of the above, and properly belongs to our species of marsh or intermittent fever. This form is known among writers as catarrhal phthisis or chronic bronchitis, and its true pathology seems to me to consist in

the *calculus* of M. Bayle, which we will again notice under the head of gouty or podagric types. We intend to treat in this place of the disease described by Louis and Laennec, namely, the *tubercular*,* and of *that alone*. This is the form of pulmonary consumption which we regard as being entirely isopathic with the scrofulous affection or common scrofula. Broussais† was well convinced that Laennec and Louis were wrong in attributing phthisis in all cases to tuberculosis of the lungs, and assures us that he has seen many cases of the disease in which no tubercles could be detected after death. This was, no doubt, true, and we have before mentioned the observation of De Haen, that he had examined cases after death from phthisis, in which he could not detect the point in the lungs whence proceeded the purulent discharge; but all this apparent confusion vanishes when we remember that both these observers were speaking of a disease specifically distinct from the one we are now considering. They were speaking of the apostematous or purulent consumption, while Laennec and Louis were confining themselves to the tubercular. Here, then, is one example of the confusion among medical writers arising from their not recognizing the law of the isopathism or parallelism of diseases: from not considering a fact long ago taught by Sydenham,‡ that "diseases may come under the same genus, bear the *same name*, and have some symptoms in common, which, notwithstanding being of a different nature, require a different treatment."

Having now clearly defined the disease of which we are speaking, I proceed to the *proof of its identity with scrofula*. This identity, I know, has been denied by some able writers, and very recently by such men as Evans,§ Beer, Lebert, Phillips,|| Albers, Mackenzie,¶ and our own distinguished countryman, Dr. Chapman;** but I cannot help believing that

a transfer of the perspiratory or urinary excretions, from want of action in these emunctories, to the mucous membrane of the lungs, forming a false crisis, and should come under our notice of the critical symptoms of that fever. This was evidently the opinion of Dr. McCulloch, and it can readily be perceived how this continued over-tasking of the lungs with the elimination of the watery particles of the blood, may produce an irritation that would lead to emaciation, cough, and the expectoration of *mucopurulent* or *puriform* matter. If this opinion be well founded, then it would follow that one form of phthisis would prevail in malarious regions, which, instead of being antagonistic, would be isopathic with the fevers of such districts, whereas it might be still true, that the tubercular form would be more confined to higher and colder latitudes, and might not be the most usual form met with in those places where intermittents prevail. In the discussions, therefore, upon the antagonism of marsh fever and phthisis, care should always be had to *ascertain the peculiar species of both diseases*.

* The existence of tubercles in the lungs is the cause and constitutes the special character of phthisis.

† M. Broussais, after quoting the remark of M. Louis, borrowed from Laennec, that "l'existence des tubercules dans les poudrons est le cause et constitue le caractère propre de la phthisie," has the following declaration:—"Nous déclarons d'abord cette proposition fautive, en affirmant que nous avons rencontré plusieurs fois et notamment dans cet hiver de 1832, des exemples de consommation par phlegmasie chronique et fonte purulente des poudrons, dans lesquelles il n'y avait pas le plus légère trace des tubercules, en prenant ce mot dans le sens rigoureux que lui donne M. Louis. Voilà donc une première loi qui se trouve fautive. Comme nous avons vu cela, nous sommes certain que d'autres le vérifieront, et nous voilà tranquille."—Examen des Doct. Méd., tom. quat. p. 336.

‡ Preface to Wallis' edition of the "Works of Thos. Sydenham," p. 25.—(Anno. 1788. London.)

§ Lectures on Pulmonary Phthisis.

|| Scrofula, its nature, causes, &c.

¶ Ranking's Abstract, i. p. 73.

** Lectures on the more important Dis-

eases of the Thoracic and Abdominal Viscera.

we have, on the other side of the question, the weight of authority and of facts. In the first place the isomorphic and isomeric characters of tuberculous and scrofulous matter prove their identity. We have already seen that Prout, Gendrin and Bredon have given the chief ingredient in scrofulous matter as albumen; this is the chief ingredient in tubercle. Mr. Gulliver* says, that "crude tubercular matter, from *whatever organ obtained*, differs as little in its microscopical as in its general and chemical characters. The drawing shows how nearly the microscopical elements composing crude tubercles of the *lungs* and of the *lymphatic glands* agree." Dr. Good† says, "the untempered fluid contained in the tubercles resembles that of scrofula, and more especially as this variety of consumption is very generally found in constitutions distinctly scrofulous, the analogy between the two is extremely close, and has often led to a similar mode of treatment." Laennec‡ says, the "tubercles in the lungs differ in no respect from those situated in the glands; and which, under the name of scrofula, after being softened and evacuated, are followed by a perfect cure." Dr. Duncan§ regards tubercles "as lymphatic glands in a particularly diseased state; that such diseased state is the consequence of scrofula; and that *tubercular phthisis may, in every instance, be regarded as scrofula affecting the lungs*." This is also the opinion of Dr. Parr, who ascribes consumption to an ulcer in the lungs, which, proceeded from the suppuration of a strumous gland, which we know," says he, "heals with peculiar difficulty." Bayle|| insisted on the scrofulous origin of tubercles.—I have myself observed (and I would ask who has not?) scrofulous enlargement of the lymphatic glands to be suddenly replaced by fatal and rapid pulmonary phthisis—thus proving their mutual *convertibility*. This has been repeatedly noticed by Lugol, whose experience and observations upon this point are so full and conclusive, that we will sum up all we have to say in the following pertinent extract:—Lugol¶ says, "The identity of scrofula and pulmonary tubercles is, in our opinion, *most manifest*; they have both an hereditary origin, and are equally general and fatal in the affected family. The two latter characters, which belong to each of these diseases in an equal degree, are in themselves sufficient to establish their identity; but we shall endeavour to render the fact still more evident by demonstrating, first, that scrofula has frequently a tubercular origin; secondly, that the two diseases ordinarily co-exist in the same family; and thirdly, that all scrofulous subjects have tubercles in the lungs.

"1st. More than half the subjects of scrofula have consumptive progenitors. Scrofulous diseases of all kinds invade a family without the operation of any other cause than the existence of pulmonary tubercles in one of the parents. So general is this fact, that in a ward containing 84 beds, we have constantly ascertained the existence of consumption in one or other of the parents of more than half the patients; and even this is below the real proportion, for a great many patients are utterly ignorant of the sanitary condition of their families, and in other cases the presence of consumption has been overlooked, because it was not accompanied by its more manifest signs.

"2d. The preceding observations are still further justified by the frequent coincidence of scrofulous diseases and pulmonary consumption in

* Med. Chir. Rev., July, 1846, p. 131. † Study of Med., vol. iii. p. 273.

‡ De l'Auscultation Médiate.

§ Examen des Doctrines Médicales, tome quat., p. 152.

¶ Ranking's Abstract, vol. i. p. 73.

§ Am. Journ. of Med. Sci., No. 32, p. 388.

the same family. (And here the author gives cases in confirmation.) In scrofulous families, children often perish from disease in the lungs; and again in consumptive families some of the members are carried off by various forms of scrofulous disease.

"3d. Scrofulous, in the ordinary sense of that word—that is, children who are regarded as scrofulous, and not tuberculous—are, nevertheless, as much the subjects of this deposit as those in whom tubercle has concentrated itself in the respiratory organs. *The natural death of the scrofulous is by consumption*; we might say, indeed, that they seldom die in any other way, for in all forms of scrofula, death rarely takes place until after the invasion of the lungs by tubercular deposit." To the same purport we might cite the opinions of others* upon the subject, but we deem it needless; enough has been said to prove the identity of the two diseases.

The next disease which we shall consider as isopathic with scrofula, is "*tubes mesenterica*." Marasmus has long been regarded as a scrofulous affection, inasmuch as it generally occurs in the children of scrofulous parents, and although denied by some, there can be no doubt of the fact, that in this disease the deposit of scrofulous matter into the lymphatic glands under the skin, is replaced by a similar deposit into the mesenteric glands. Dr. Good† has given the disease the name of *MARASMUS TABES STRUMOSA*, indicating his belief in its scrofulous origin. Dr. Marshall Hall‡ has arranged it along with tubercular meningitis and pulmonary consumption, as alike the product of scrofula. Dr. Dickson§ remarks upon this point, "Gregory was the first, I think, to recognize the cause with distinctness. It would be well if we could agree with him to employ the phrase in a limited sense to designate this infantile complaint as consisting in a primary scrofulous affection of the peritoneum and mesentery, with consequent disorder of the alimentary canal in all its extent;" and again, "It shows itself in an infinite majority of cases in the children of scrofulous parents; or, where the parents have not exhibited any specific form of scrofulous disease, under circumstances in which they and their offspring are obviously exposed to the influence of the agents formerly spoken of as fostering the production and development of scrofula."

The reviewer|| of Gibert's work on pulmonary consumption has made the following remarks upon this point, which we will give entire. He says: "These seeds (that is, of unorganizable matter) are generally known by the name of tubercular matter, and when deposited in the lungs in separate masses, they are termed tubercles, and the resulting disease is denominated consumption of the lungs. It may, however, be here observed, that where tubercular or unorganizable matter becomes deposited in any of the lymphatic glands or in the joints, the disease is termed scrofula. If, on the other hand, it is arrested in its passage through the mesenteric glands, then the name of *tubes mesenterica* is employed to distinguish it. It must, therefore, appear obvious that these three diseases are all radically one and the same, depending entirely on the presence of unorganizable matter, and differing only in locality."

* Whilst these sheets are passing through the press, I have received a notice of a work "On the Pathology and Treatment of Scrofula," by Dr. Glover, from which it appears that the author is a believer in the identity of scrofula and tubercle, and I beg leave to refer my readers to this work for further confirmation of the views above set forth. See also notice of it in the preceding number of this Journal, pp. 167-177.

† Study of Med., iii. p. 234.

‡ Essays on Pathology, i. 576.

§ Med. Chir. Rev., July, 1842, pp. 46-47.

|| Practice of Med., p. 172.

When the tuberculous matter is deposited on the peritoneum, the disease is known as tubercular peritonitis. M. Louis* considers every case of chronic peritonitis, when not dependent upon the acute, as being tuberculous. Drs. Henry Marsh† and Fleetwood Churchill have both published communications in the *Dublin Journal of Medical Science*, on a form of peritonitis occurring in strumous individuals, to which they have given the title of strumous peritonitis, and they say that "strumous inflammation of the peritoneum with effusion may present itself either as an acute or chronic disease: the latter, which is the more frequent form, may be an evident consequence of the former, or, it may occur without our being able to recognize any preceding acute stage, coming on so gradually in fact, that the nature of the complaint may not be discovered until it is fully developed." The appearances which they describe as being presented after death, are "more or less effusion into the peritoneal cavity, with shreds of floating lymph therein. The intestines are agglutinated together and sometimes to the peritoneum, which membrane is occasionally thickened and partially injected, and sometimes studded with *miliary tubercles*, or has tubercular matter deposited on it. The mesenteric glands may be healthy, or they may be enlarged and contain tubercular matter."

The effusion alluded to above, would, of course, give rise to a form of ascites which, as in the case of tubercular meningitis, would not change the nature of the disease, as this would be but another link added to the results of *one and the same morbid action*. We pass on to the consideration of another isopathic form of this species of disease.

The form of disease to which we allude is an affection of the urinary organs, known as albuminuria, and by many supposed to depend upon a certain state of the kidneys, which has been called morbus Brightii. In this disease the urine is found to be coagulable by heat and nitric acid, showing the existence in it of a large quantity of *albumen*. Dr. Bright, to whom we are chiefly indebted for a knowledge of this disease, has described the appearances of the kidneys after death as of three different kinds. "In the first, the kidney loses its usual firmness, and becomes of a yellow mottled appearance externally; the size is not materially altered. In the second, the whole cortical part is converted into a granulated texture, and there appears to be a copious morbid interstitial deposit of an *opaque white substance*; the kidney is rather larger than natural. In the third, the kidney is rough and scabrous externally, and rises in numerous projections not much exceeding a large pin's head, yellow, red and purplish; it is hard, and inclined to be lobulated, and its texture approaches to a semi-cartilaginous firmness; there appears, in short, a contraction of every part of the organ, with less interstitial deposit than in the last variety." Dr. Christison has styled "the disease '*granular degeneration of the kidneys*,' M. Rayer '*albuminous nephritis*,' while M. Solon terms the primary disease '*albuminuria*.'"

In the 29th volume of the *Medico-Chirurgical Transactions*, there are no less than three separate articles devoted to the consideration of this disease—one by Dr. Johnson, another by Mr. George Busk, and a third by Mr. Joseph Toynbee. Dr. Johnson advances the opinion that the disease depends essentially upon a fatty degeneration of the kidneys, similar to that which takes place in the liver, or to an "excessive increase of

* Hall's Practice, 573. Note by Eds.

† Am. Journ. Med. Sci., July, 1843, p. 206, *et seq.*

‡ Hall's Practice, p. 393. Med. Chir. Rev., April, 1842, p. 460.

fat, leading to engorgement of the epithelial cells and of the urinary tubes." Mr. Toynebee agrees with Dr. Johnson in part, and admits that the circulation in the kidney of "an unnaturally large quantity of carbonized and azotized elements," may produce a deposition in the organ of adipose matter, but says that there "can be no doubt that albuminous urine often exists without any such deposition;"—while Mr. Busk affirms that a microscopical examination of the substance of the kidney reveals the following appearances: "the tubuli uriniferi were found to be in parts indistinct or obliterated, and in others to be filled with a semi-opaque, white granular material, soluble or rendered transparent by acetic acid, and *presenting none of the characters of oil, very few globules of which were observed in any part of the gland.* It was the dense white material, consisting of minute sub-globular refracting particles, soluble in acetic acid, the accumulation of which in the larger straight tubuli uriniferi constituted the white striæ above mentioned." Dr. Robinson,* in his work on "*Granular Disease of the Kidney*," mentions a sub-acute form, in which there exists "*more or less albuminous deposit*" into the substance of the kidneys. M. Rayer† has met with true tubercular disease of the kidneys in *albuminuria*.

This contrariety of opinion in regard to the nature of the deposit into the kidneys, which gives them the granular appearance, should cause us to hesitate in giving the opinion which we entertain upon the subject, particularly when we remember that this opinion is not founded, as it should be, on actual experiment and observation on our own part; but we, nevertheless, will express our convictions founded upon the observations of others, with the hope that they may be either fully disproved or established by subsequent observers. We regard the albumen, then, which is passed off in the urine, as nothing more nor less than *tubercular matter* or *vitiated albumen*, which, instead of being deposited in the glands or other tissues, finds an outlet from the system *in this way*, and that the *granular state of the kidneys* is a kind of *tuberculosis of these organs*, caused by the *deposition of this albumen in its passage through them*. This being thus a vicarious discharge of tuberculous matter, is a relief to organs that might otherwise have suffered. In this way, no doubt, many purulent diseases come to a crisis by the elimination of the deleterious matter through the alimentary canal, or some other emunctory, possibly the kidneys or the liver. The proof which we have of the identity of this disease with strumous or tubercular diseases, is founded chiefly on the following observations:—

"In persons of a scrofulous constitution, I have observed," says M. Rayer,‡ "the urine, which a short time before exhibited no abnormal phenomena, assume all the characters observed in cases of chronic albuminous nephritis with general dropsy." Among the causes enumerated by this writer, are mentioned "scrofulous disorders" and "*pulmonary phthisis*." This last is said to have a "*marked effect*." Syme§ has also met with albuminous urine in "*strumous disease*." Scrofula and tubercular deposits are referred, by M. Fourcault,|| to the same cause as albuminuria. But by far the most interesting article which I have seen upon the subject is from the pen of Dr. Thos. Bevil Peacock,¶ in the *Am. Journ. of Med. Sciences*,

* Med. Chir. Rev., April, 1842, p. 451.

† Ibid., p. 452.

‡ Ibid., Oct. 1841, p. 458, *et seq.*

§ Ibid., April, 1842, p. 452.

|| Am. Journ. Med. Sci., Jan. 1845, p. 194.

¶ Ibid., Oct., 1845, p. 450, *et seq.*

for Oct. 1845. The title of this paper is, "On the co-existence of granular disease of the kidneys with pulmonary consumption; and on the influence of the strumous diathesis in predisposing to the renal disease." After stating the opinion of Dr. Bright that "the condition of the body in this form of renal disease is unfavourable to the existence of phthisis," he cites the adverse opinions of other men. Dr. Christison says, "I have very little hesitation in putting down the scrofulous diathesis among the predisposing causes of granular disorganization of the kidneys. In repeated instances I have been led, by the supervention of œdema during phthisis, to examine the qualities of the urine, and although the result has not been invariable, still in a great proportion of cases of the kind, the secretion has been found to possess the properties essential to the renal disease." M. Rayer "expresses the concurrence of his experience and views with those of Dr. Christison." Martin Solon "found the lungs tuberculous in four out of ten dissections of persons who had sunk under granular disease of the kidneys." Dr. Osborne states, that "of thirty-six cases of renal disease with albuminous urine, which had fallen under his notice, four originated in scrofula, and in one of the only two dissections of cases of renal affection producing dropsy, which he relates, the lungs were in an advanced state of tuberculous disease." Dr. Peacock then goes on to give the relative proportion which tuberculous affections of the lungs bear to granular disease of the kidneys, as deduced from the observations of Dr. Gregory, M. Rayer, and himself, and he finds, that by "placing together these observations, which do not differ more widely than will always be the case in limited series of facts, it results, that of 117 cases of decided granular disease of the kidneys, extensive tuberculous affections of the lungs existed in 26, and a smaller number of tubercles of recent origin in 10 others; or, out of the 117 cases, 36, or nearly one-third (30.7 per cent.), contained more or less extensive advanced tuberculous deposition in the lungs, a proportion much larger than that deduced by Dr. Bright from his table,"—and without going more into detail, we must refer our readers to this valuable paper, and give the result of Dr. Peacock's inquiries. "In conclusion," he says, "we have seen that pulmonary consumption very frequently co-exists with the granular disorganization of the kidneys, and that so far from being an accidental complication supervening during the last stages of that affection, *the pulmonary usually precedes the renal disease.* We have also found that in cases where the lungs are healthy, there frequently exist other proofs of the *tuberculous* diathesis, and we can therefore scarcely withhold the conclusion that this *constitution very powerfully predisposes to the renal disorganization.* The diseases dependent on the *scrofulous constitution* being most frequent during infancy and adolescence, it follows that at these periods the renal and strumous affections should most generally co-exist. This inference is *confirmed so far as relates to the coincidence of phthisis and renal disease by the analysis of the cases before referred to.*"

Now since it has been established, by the experiments and observations of Magendie and Andral, that the escape of the albumen from the liquor sanguinis does necessarily give rise to effusions of serum into the various cavities and tissues, *the effusion*, in the disease we are now considering, is, as has been said in relation to the effusion from tubercular meningitis and peritonitis, nothing but a complication of the original disease, and of course must be considered as isopathic with it, and as the serous parts of the blood may not be effused into the tissues, but pass out also by the kid-

neys we have a *form of diabetes** which is also entirely isopathic with the granular disorganization of the kidneys. We shall have occasion to speak of diabetes again under the head of hydropic types in which the disease may be idiopathic. That there is a form intimately connected with Bright's disease, and with the scrofulous affections generally, we have the testimony of several writers.

In the *Provincial Medical and Surgical Transactions* is a paper by Dr. Streetent on the medical topography of Exeter, in which he uses the following language upon this point: "Cases both of diabetes mellitus and insipidus are by no means uncommon. Every case of true diabetes that has come under my observation here has terminated in tubercular consumption. This has been so uniformly the case that the conviction forces itself upon me that *it is essentially a symptom of scrofulous disease*, and that the kidney is made to be an emunctory of those matters otherwise colliquatively discharged by the skin." Dr. Bell,† in an *Essay on Diabetes*, in speaking of its complications, particularly dwells on phthisis pulmonalis, and the reviewer says, "a very common complication it is; granular disease of the kidney is not a very rare one, and dropsy, generally a consequence of the latter, closes the scene."

We must pass over hastily the remaining affections which we regard as isopathic with the present species, and content ourselves by a bare reference to them. Scrofula, it is well known, may affect the tegumentary tissues giving rise to a form of *ophthalmia* and *oitis*, and to many so called *skin*

* We hope to treat more fully of diabetes in another place in reference to its true pathology. We may be permitted to say here, however, that the change from the albuminous to diabetie or saccharine urine may easily be explained upon chemical principles by simply admitting a slight modification in the secretory or excretory action of the system. It is stated by Dr. Barlow (*Med. Chirurg. Rev.*, vol. xxxviii. p. 256), that 9 equivalents of sugar + 1.1 equivalent of ammonia—5 equivalents of water and $\frac{1}{2}$ equivalent of carbonic acid, when reduced to 100 parts, give very nearly the equivalents in albumen, according to the analyses of Gay-Lussac and Thénard. If this be so, then it can readily be perceived how the one might be converted into the other—for although the experiments and observations of Liebig and Boussingault tend to establish the doctrine that there is no creation of these proximate principles by the action of digestion, but that each is found ready formed in the articles of diet which we consume, yet they do not appear to me (vide an interesting paper entitled "*Récherches Expérimentales sur le développement de la graisse pendant l'alimentation des Animaux*, par M. Boussingault"—*Annales de Chimie et de Physique*, tome xiv, p. 419; also "*Expériences sur l'engrais des oies*, par M. Persez"—*Ibid.*, p. 408), to falsify the notion that in the processes of transformation which take place in the system, one of these principles may be converted into another, when the same ultimate elements exist in both. Thus fat might be made in some cases to replace the sugar, both being composed of the same elements, although in different proportions, and would thus account for those appearances in the kidneys mentioned by Dr. Johnson and Mr. Tuynbee. This seems to be the opinion of Dr. Watts, (*Ranking's Abstract*, vol. i. p. 219.) who mentions that great obesity, or "*the production of fat, is one of the precursors of diabetes.*"

Supposing this form of diabetes and dropsy to be isopathic, we find a similar sentiment expressed by Spenser in his "*Faerie Queene*," which we give as being more curious than useful.

"Full of diseases was his carcase blew,
And a dry droorste through his flesh did flow,
Which by misdiet daily greater grew—
Such one was Gluttony, the second of that crew."—Book I. canto iv.

† *Med. Chir. Rev.*, vol. xli. p. 11.

† *Ibid.*, vol. xlii. p. 521.

diseases. Among these latter we may mention a form of *eczema** and *impetigo*, and we think the disease known as *molluscum* may very properly come under this head. From the descriptions which I have seen of it, it seems to bear a close resemblance to the disease among horses called by Dr. Coleman "*scrofula farcimen*." Under the same species we would rank also the Greek and Arabic Elephantiasis, which, notwithstanding the high authority of Dr. Good, we regard in common with Pinel and many other writers, as the same disease, both being forms in which *scrofula* may manifest itself in hot or tropical climates.

Liberty County, Geo., May 10th, 1847.

ART. IV.—*Amputation above the Shoulder-joint.* By DAVID GILBERT, M.D., (of Gettysburg, Pa.): Prof. of Surgery in Medical Department of Pennsylvania College, Philadelphia.

IN furnishing the following case for publication, the object is to present to the profession the facts and circumstances connected with it, that each one may compare and collate these with others hitherto had, in making his deductions, when called upon to decide in emergencies of a similar character. The writer, in his private practice, has always been opposed to a speedy resort to operative procedures; and as a public teacher, has never advocated *heroic surgery*. In his first *introductory lecture*, published by the class of session 1844-5, he thus expresses himself. "Let your knowledge, therefore, of this branch (Mat. Medica) be minute and accurate, and you will be surprised at the victories you are able to achieve over disease, and to find how frequently you can dispense with the knife, which should always be your *last resort*, and to succeed without which should be your constant aim." The same principles are advocated in the published *introductory* of last session; whilst in the regular lectures of the course, on *operative surgery*, the importance of deferring the use of the knife until every other plan of treatment has failed, or is unavailing, is constantly inculcated. Whatever of novelty or of boldness, therefore, is apparent, at first view, in this case, since it extends beyond the ordinary limits of operative surgery, it is believed, is justified by the nature of the disease, the condition of the part, and the circumstances of the patient, and is in entire consistency with the established axiom in Surgery, "that operations ought to be performed only when the danger and inconveniences to which they expose the patient, are less than those of the disease treated otherwise."

Whilst on a professional visit, during the summer of 1846, to the *valley of the Susquehanna*, my advice was solicited in the case of the Hon. J. Wagoner, M.D., of Selings Grove, Union County, Pa.

* Vide Lugol, *Researches and Observations on the Causes of Scrofulous Diseases*, and *Med. Chir. Rev.*, vol. xlv. p. 258; *ibid.*, xxxviii. p. 608.